

HUGHES COUNTY

ROAD SAFETY AUDIT REVIEWS

August 28, 2001

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Dry Run Road from the junction with SD 34 north to 296th Ave. (East of Pierre):

This roadway was classified for the purposes of the Roadway Safety Audit (RSA) as a Rural Minor. The surface is gravel and the posted speed limit on the roadway was 30 MPH through a residential area and 55 MPH through the rural area. For the purposes of the audit, the Milepost (MP) location information is referenced from the south end of the job (MP 0.0) increasing by miles heading north. Following are the findings and recommendations of the RSA team:

The following items were identified as areas where immediate safety improvements should be made:

- There were no immediate improvements identified.

The following items were identified as areas where low cost improvements could have a positive impact on safety and should be considered in a reasonable period of time:

- At MP 0.0 the “slow children at play” sign should be removed and a “pedestrian warning” sign installed on a separate post farther from the intersection.
- At MP 0.05, the house marker 1180 should be removed from the center of the culvert and placed at the right-of-way (r/w) line. The

- pipe end at this location could use some grade shaping around the end or cut the pipe end to match the slope.
- At MP 0.10, the guy wire for the power pole should be relocated further from the edge of the roadway.
 - At MP 0.35, remove rocks from the r/w.
 - At MP 0.45 and 0.55, the approaches should be regraded to the r/w line to provide a flatter approach onto the roadway.
 - At MP 0.65, the “slow children at play” sign should be removed and a “pedestrian warning” sign installed on a separate post.
 - At MP 1.0, the 40 mph “speed limit” sign is leaning considerably and should be reinstalled.
 - At MP 1.5, the curve should have back-to-back 4”x 4” silver delineation installed at 100’ spacing on the outside of the curve. Also, due to the steepness of the grade an application of Magnesium Chloride (MgCl) may help hold the gravel surface in place.
 - At MP 2.6, (junction with 296th ave):
 - The yield sign and double arrow have been shot up and should be replaced after this year’s hunting season.
 - There is an additional post in the northwest corner of the intersection that should be removed.
 - The radiuses should be regraded to establish drainage on the north and eliminate the drop off on the south.

The following items were identified as high cost improvements that should be considered as funds become available for a major rehabilitation or reconstruction of the roadway:

The power pole at MP 0.10 should be relocated.

Chapelle Road from the junction with SD 34 north to junction with 314th. (East of Pierre):

This roadway was classified for the purposes of the RSA as a Rural Minor. The roadway has a gravel surface and the posted speed limit is 55 MPH. For the purposes of the audit, the Milepost location information is referenced from the north end of the job (MP 0.0) increasing by miles heading south. Following are the findings and recommendations of the RSA team:

The following items were identified as areas where immediate safety improvements should be made:

- There were many deficiencies noted on this section that are listed in the next sections. Due to the sheer number and nature, the RSA team feels this roadway should be considered for some type of major improvement. Although total reconstruction is long term due to cost, a number of spot improvements at many of the locations could dramatically improve the safety of the roadway.

The following items were identified as areas where low cost improvements could have a positive impact on safety and should be considered in a reasonable period of time:

- At MP 0.0 to 0.2, install back-to-back 4"x4" silver delineation at 100' spacing on the outside of the curve.
- At MP 0.2, remove the eastbound/southbound leg of this Y intersection and force all traffic thru the other leg where adequate sight distance exists. Some grading and surface widening will be required to provide an adequate turning radius.
- At MP 0.28, remove rock on the right.
- At MP 0.38, the "curve warning" sign is leaning and turned away from traffic. This sign needs to be reinstalled. Also, there is an old post that should be removed.
- At MP 0.50-0.80, provide continuous back-to-back 4"x4" silver delineation at 100' spacing throughout this section to define the alignment and steep slopes.
- There were several mailboxes throughout the project, although none appeared to be extremely hazardous (such as an old plow or a drum filled with concrete) most did not appear to be crashworthy (see attached SDDOT standard plate on mailboxes for specific information). It is recommended that the county work with the landowners to get crashworthy mailboxes and turnouts installed where appropriate.
- At MP 0.73 and 0.80, rocks on right should be removed.
- At MP 0.85 to 1.0 the smaller trees and those in the clearzone should be removed. Additionally, larger limbs overhang the road creating a

- tunnel effect. These trees should be trimmed back to open up the roadway as much as possible.
- At MP 0.85 – left, the sign is obstructed and needs to be relocated.
 - At MP 0.90 – structure, the object markers should be raised to a minimum height of 3’ from the top of roadway to the bottom of the marker. One marker is damaged and needs to be replaced.
 - At MP 1.05, should install a “hidden drive” sign for northbound traffic with a supplemental “next 1000 ft” plaque for the group of driveways.
 - Back-to-back 4”x4” silver delineation should be provided at 100’ spacing at the following locations:
 - MP 1.05 to 1.30.
 - MP 1.4 to 1.5
 - MP 2.6 to 2.8
 - MP 3.5 to 3.8
 - MP 4.2 to 4.8
 - Several approaches and farm entrances are uneven and require grading to match the existing roadway.
 - At MP 1.72, object markers should be provided on both sides of the road at this location to define a steep drop off.
 - At MP 1.8, junction with 212th Ave:
 - Install a stop sign at this intersection on the 212th Ave. leg.
 - Remove the “T” intersection warning sign.
 - If possible, relocate the approach across from 212th Ave. leg slightly farther to the south and install the “two-directional arrow” sign directly ahead of the intersection to increase visibility.
 - At MP 3.13, relocate the field approach on the right to increase the sight distance.
 - At MP 3.3, install a “hill” sign for the downgrade.
 - At MP 3.45, remove the old object markers across the fill and install back-to-back 4”x4” silver delineation on both sides of the roadway at 100’ spacing.
 - At MP 3.5, the “curve” sign is leaning and should be reinstalled.
 - At MP 3.7, install an “one-direction large arrow” sign for northbound traffic, similar to the southbound installation.
 - At MP 3.8, trim the tree branches that encroach into the roadway and attempt to cut trees that are within the clearzone.

- At MP 3.8-3.9, due to steepness of fill, install back-to-back 4"x4" silver delineators at 100' spacing on both sides of the roadway.
- At MP 3.9-4.8, this series of curves is currently marked with a "winding road" sign that curves the wrong direction (left, not right). However, the section of road may not justify the use of this sign. This series of curves should be ball banked and the tangent lengths measured to identify proper signing. Contact Cliff, Local Government Traffic & Safety Engineer, at 773-5361 to assist in determining proper "curve" signs
- The roadway has several locations where the overall safety could be drastically improve if short sections of grading could be done. These include:
 - Vertical alignments at various locations, but particularly at the north end (MP 0.25 to 1.8).
 - The fill slopes from MP 0.50 to 0.85.
 - MP 1.72, extend the pipe, flatten slopes and relocate fence.
 - MP 3.45 flatten slopes
 - MP 3.8 to 3.9 a combination of slope flattening and install guardrail across the pipes.

The following items were identified as high cost improvements that should be considered as funds become available for a major rehabilitation or reconstruction of the roadway:

- The roadway should be reconstructed to provide for improvements in vertical and horizontal alignment, slopes and width. Specific sites also would include:
 - Reconstruction of the "y" intersection at MP 0.0 - 0.20 to a single point intersection.
 - MP 0.90, install approach rail on the structure and upgrade bridge rail.

County Road 203 from the junction with SD 34, south to the West Bend Recreation Area:

This roadway was classified for the purposes of the RSA Rural Major – High Speed. The surface was recently paved and the posted speed limit on the roadway is 55 MPH. For the purposes of the audit, the Milepost location information is referenced from the south end of the job (MP 0.0) increasing

by miles heading north. Following are the findings and recommendations of the RSA team:

The following items were identified as areas where immediate safety improvements should be made:

- The temporary striping on this project and the supplemental No Passing Zone pennants are not correct. Some of the problems noted include: Sign and markings not at same location, pennants missing on some zones, zones are too short or have a very short distance between them. **The no passing zones on this section should be re-run and properly established prior to final striping.**
- It appears that inadequate, or no, horizontal control was used on the project resulting in uneven pavement edges and drop offs. Material should be hauled in and bladed to match the edge of the pavement overlay.

The following items were identified as areas where low cost improvements could have a positive impact on safety and should be considered in a reasonable period of time:

- The approaches on the project are uneven and should be graded to match the roadway.
- At MP 0.20, the no passing pennant is obstructed by trees. If the no passing zone pennant is in the proper location, the trees need to be trimmed.
- At MP 0.45 to 1.4, back-to-back 4"x4" silver delineation should be provided at 100' spacing on the outsides of the curves. These curves also need to be ball banked and tangents measured to ensure the proper "curve" warning signs are installed.
- At MP 3.6, install back-to-back 4"x4" silver delineation on the outside of the curve.
- At MP 4.6, remove old, unused post.
- At MP 4.7 and 5.2, remove school bus stop sign, the sight distance here is adequate and the sign is not needed.
- At MP 5.15, remove "truck crossing" warning sign.
- At MP 5.9, replace yield sign on approach with a stop sign due to the high speed nature of the roadway.

The following items were identified as high cost improvements that should be considered as funds become available for a major rehabilitation or reconstruction of the roadway:

- None were identified.

County Road B-4 from the junction of 314th east to three miles west of Harrold.

This roadway was classified for the purposes of the RSA as Rural Low Volume Local Road. The surface is gravel and there was no posted speed limit on the roadway. For the purposes of the audit, the Milepost location information is referenced from the west end of the job (MP 0.0) increasing by miles heading east. Following are the findings and recommendations of the RSA team:

The following items were identified as areas where immediate safety improvements should be made:

- At MP 3.35, the large drainage pipe should be marked with several object markers to define the extent of the area occupied by the pipe. Also, the debris at the pipe ends should be removed.

The following items were identified as areas where low cost improvements could have a positive impact on safety and should be considered in a reasonable period of time:

- At MP 0.50 and 0.65, the culvert ends should be marked with a 4"x4" silver delineator.
- At MP 0.53 and 0.67, some short cut sections exist. The back slopes could be laid back to eliminate the accumulation of snow drifts.
- At MP 0.70 - right, the pipe at this location could be extended and back filled out to the clearzone.
- At MP 3.1, the object markers are in need of maintenance.
- At MP 3.5 and 3.85, the channel at this location is very close to the roadway and should be delineated.
- At MP 3.75, the pipe at this location could be extended and back filled. At a minimum, delineation should be provided.
- At MP 4.05, the yield sign should be relocated closer to the intersection.

- At MP 4.1, the guy wire on the south side should be removed as it is in the clearzone. If the guy wire is necessary, it could be relocated to the north side of the intersection.
- There are some sections where shoulder reshaping should be completed this spring to eliminate the berm at the shoulder line.

The following items were identified as high cost improvements that should be considered as funds become available for a major rehabilitation or reconstruction of the roadway:

- The vertical alignment from MP 0.55 to 0.90 is in need of some spot reconstruction to cut down hills. This improvement would increase the sight distance.
- At MP 3.35, a spot improvement could be accomplished here to extend the pipes and flatten the slopes. Since the channel was relocated to the structure to the west, the large pipes may no longer be necessary and a smaller one could be installed.
- The channel areas that abut the road at MP 3.5 and 3.85 should have slopes flattened and rip rap added..

County Road 811, from the junction with US 14, north to the junction with 202nd. (Pierre – North)

This roadway was classified for the purposes of the RSA as a Rural Major High Speed. The surface is gravel and the posted speed limit on the roadway was 55 MPH. For the purposes of the audit, the Milepost location information is referenced from the north end of the job (MP 0.0) increasing by miles heading south. Following are the findings and recommendations of the RSA team:

The following items were identified as areas where immediate safety improvements should be made:

- No immediate concerns were noted.

The following items were identified as areas where low cost improvements could have a positive impact on safety and should be considered in a reasonable period of time:

- There were several mailboxes throughout the project, although none appeared to be extremely hazardous (such as an old plow or a drum filled with concrete) most did not appear to be crashworthy (see attached SDDOT standard plate on mailboxes for specific information). It is recommended that the county work with the landowners to get crashworthy mailboxes and turnouts installed where appropriate. It was also noted that the mailbox at MP 2.7 needed reshingling.
- At MP 0.04, a rock and a telspar sign base adjacent to the roadway that should be removed.
- At MP 1.5, 203rd should have stop signs due to the high speed nature of the roadway.
- At MP 2.2, an unused signpost exists. The sign should be replaced on the post or the post removed.
- At MP 3.5, the yield sign on 205th should be replaced with a stop sign due to the high speed nature of the roadway.
- The approaches to the Shamrock Edition at MP 3.6 and 3.75 should have stop control.
- At MP 3.75, the house number is down and needs to be reinstalled.

The following items were identified as high cost improvements that should be considered as funds become available for a major rehabilitation or reconstruction of the roadway:

- The traffic on this section appears to be quite high (400 ADT). If volume continues to increase, consideration should be given to paving the roadway to eliminate the need for frequent blading.